

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

1. (Previously presented) A system for a hydrocarbon fired burner comprising:
 - an exhaust conduit in fluid communication with the burner;
 - a recirculation conduit configured to provide fluid communication between the exhaust conduit and burner inlet;
 - an adjustable valve configured to selectively permit the recirculation conduit to provide fluid communication between the exhaust conduit and the burner inlet;
 - a NOx sensor located in the exhaust conduit;
 - a system controller operably connected to the NOx sensor and configured to monitor an amount of NOx emissions in the exhaust conduit, the system controller also operably connected to the valve to adjust the valve; and
 - a burner controller operably connected to the system controller, wherein the system controller sends a signal to the burner controller to shut down the burner when the NOx emissions in the exhaust conduit are at or above a first predetermined level.
2. (Original) The system of claim 1, wherein the sensor is located upstream from the recirculation conduit.
3. (Original) The system of claim 1, further comprising a database operably connected to the system controller, wherein the system controller sends NOx information received from the NOx sensor to the database for storage.

4. (Canceled)

5. (Previously presented) The system of claim 1, wherein the system controller activates an alarm when the NOx emissions in the exhaust conduit are at or above a second predetermined level.

6. (Original) The system of claim 1, wherein the valve is a solenoid valve.

7. (Original) The system of claim 1, wherein the system controller includes a microprocessor.

8. (Previously presented) The system of claim 1, wherein the system controller adjusts the valve to permit more exhaust gas to enter the burner inlet when the NOx emissions in the exhaust conduit are at or above a second predetermined level.

9. (Original) The system of claim 1, wherein the valve is associated with a digital processor and a system memory.

10. (Currently amended) A system for a hydrocarbon fired burner comprising:
means for exhausting combustion gases in fluid communication with the burner;
means for recirculating combustion gases from the exhausting means with the burner;
means for selectively permitting the recirculation means to provide fluid communication between the exhausting mean and the burner;
means for sensing NOx located in the exhausting means;

means for controlling the system operably connected to the NOx sensing means and configured to monitor an amount of NOx emissions in the exhausting means, the controlling means also operably connected to control the permitting means; and

~~a data storing means operably connected to the system controlling means, wherein the system controlling means sends NOx information received from the NOx sensing means to the data storing means~~

means for controlling the burner operably connected to the system controlling means, wherein the system controlling means is further configured to send a signal to the burner controlling means to shut down the burner when the NOx emissions in the exhausting means are at or above a predetermined level.

11. (Original) The system of claim 10, wherein the sensing means is located upstream from the recirculating means.

12-13. (Canceled)

14. (Previously presented) The system of claim 10, wherein the system controlling means activates an alarm when the NOx emissions in the exhausting means are at or above a predetermined level.

15. (Original) The system of claim 10, wherein the permitting means includes a solenoid valve.

16. (Original) The system of claim 10, wherein the system controlling means includes a microprocessor.

17. (Previously presented) The system of claim 10, wherein the system controlling means adjusts the permitting means to permit more exhaust gas to enter a burner inlet when the NOx emissions in the exhausting means are at or above a predetermined level.

18. (Currently amended) A method of reducing NOx emissions in an appliance having a burner comprising:

detecting NOx emissions in exhaust associated with the burner;

~~saving results obtained from the detecting step;~~

determining if a recirculation valve should be one of: opened, closed, and remain the same according to predetermined criteria; and

performing one of adjusting the valve and leaving the valve in a current position in accordance with the result of the determining step; and

automatically shutting down the burner when the NOx emissions are at or above a predetermined level.

19. (Canceled)

20. (Currently amended) The method of claim 18, further comprising at least one of:

~~shutting down the burner~~, activating an alarm[[],] and notifying maintenance personnel when the NOx emissions are at or above a predetermined level.

21. (New) The system of claim 10, further comprising data storing means operably connected to the system controlling means, wherein the system controlling means sends NOx information received from the NOx sensing means to the data storing means.

22. (New) The method of claim 18, further comprising saving results obtained from the detecting step.